

INTERNATIONAL BUREAU OF AMERICAN REPUBLICS

JOHN BARRETT, DIRECTOR

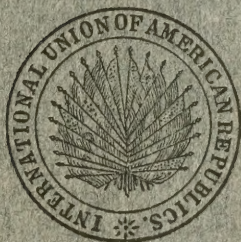
FRANCISCO J. YÁNES, SECRETARY

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# CACAO

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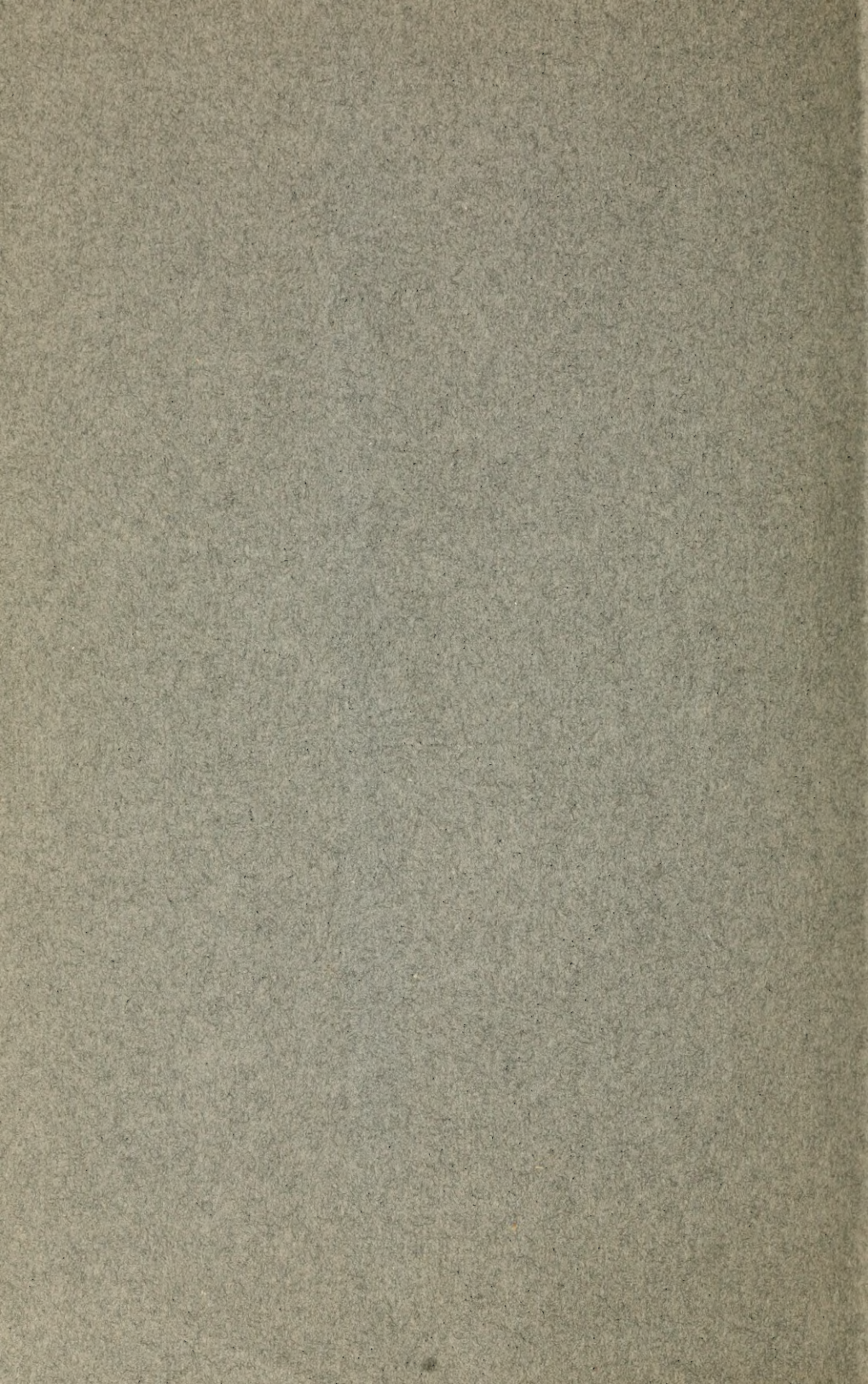
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WASHINGTON, D. C.  
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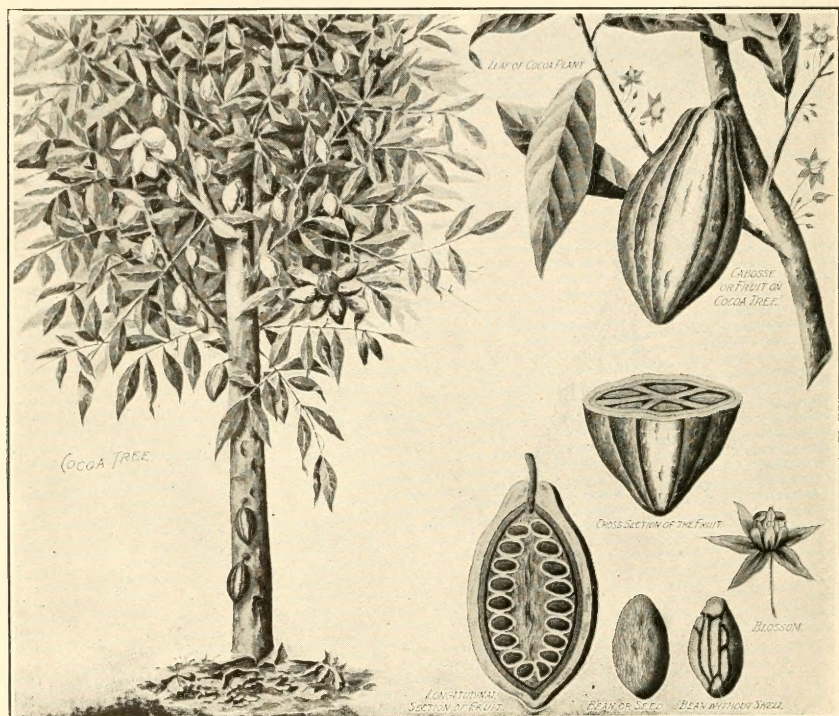
## C A C A O

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CACAO is the correct word to apply to a product which ranks with coffee and tea as a great and instinctively selected stimulus in the dietary of man. By using this term cacao instead of the English one of cocoa, two advantages are gained: First, the word then becomes of universal application, for cacao is the commercial and domestic term applied throughout Latin-America, it has been adopted in Europe since the days of the earliest importation from the New World, it is the naturalized expression wherever it is produced in the East Indies, and will be understood even in Japan, although it offers no rivalry there to the national and native tea; second, a confusion, unfortunately so prevalent throughout the English-speaking world, will be avoided. Cocoa is apt to be confounded with coca, the plant of Peru which the Indians use to sustain them in their weary journeys across the mountains, and which furnishes the drug (alkaloid) called cocaine in medicine; as a matter of fact cocaine and cacao are botanically quite different, and have nothing in common, a point that should be well known, because the fear that cocaine forms part of cocoa is entirely groundless. Cocoa is supposed also to be of the same family as the cocoanut, but here, too, the resemblance goes no further than the name, for the cocoanut is a palm and requires an altogether different soil for its propagation.

Chocolate, on the other hand, the *chocolatl* of the Aztecs, is the original cacao. In the language of the aboriginal Mexicans it meant

water—that is, a drink—from choco, which became under the Spanish tongue cacao. The Aztec name shows that the plant is distinctly American. It is indigenous to Mexico, Central America, and certain areas of South America. The Emperor MONTEZUMA was so fond of it that he had 50 jars of chocolate prepared for his own table and 2,000 more for that of his household. Its use among the people was so extensive that bags of cacao containing a certain number of beans were current as money. The Spaniards carried a taste for the drink to Europe, and even to-day chocolate is considered a peculiarly Spanish drink.



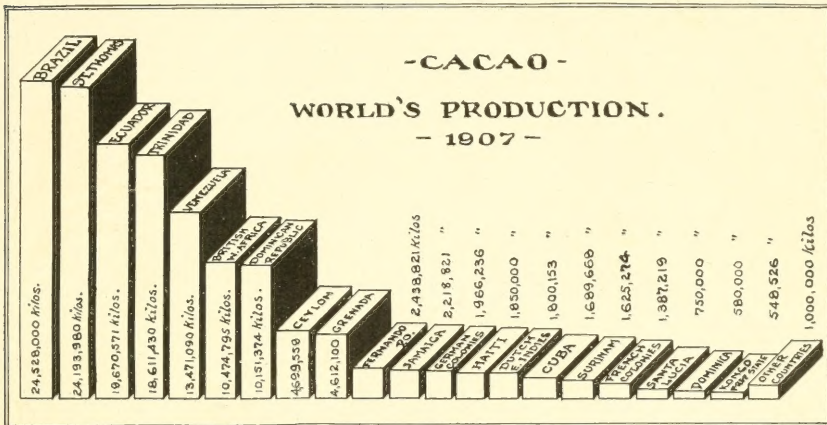
THE CACAO TREE, PODS ON THE TREE AND IN SECTIONS, AND THE BLOSSOM.

Cacao is essentially a tropical cultivation, and is known in countries situated both north and south of the line. On the north side of the equator the cacao countries are Ceylon, the Philippines, Cameroon, the Gold Coast, Mexico, Nicaragua, the Guianas, Salvador, Guatemala, Venezuela, and the West India Islands; south of the equator the main cacao countries are Ecuador, Brazil, Peru, and parts of Africa with the adjacent islands. The extreme range of latitude is from  $20^{\circ}$  north to  $20^{\circ}$  south. Not only is the cultivation of cacao limited to these few degrees within the Tropics, but it is usually a success only in those areas in which the altitude is very insignificant;



an elevation of between 200 meters and 800 meters (650 to 2,600 feet) marks the limits of the successful cacao plantations in this equatorial belt. In this respect it presents wide differences when compared with tea, cinchona, camphor, and coffee, and certain similarity in environment to the cocoanut palm, to the rubber plant, and bananas.

From one country to another varying degrees of temperature, moisture, and rainfall—that is, of climate—may be noted, but in all cases cacao requires a moist atmosphere, a temperature between 70° and 90° F., a firm, deep soil, and shade. This is the rule reported from such widely separated parts of the world as Mexico, Trinidad, Ecuador, Ceylon, and Samoa. Climate must be carefully studied before a successful plantation can be expected. Two other conditions are equally as important as climate; these are drainage and shade. Whether the land should be flat or on a hillside is a question



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for the planter and agriculturist, as is also the character of drainage best suited to any particular spot, but in any event it must have drainage, because the roots and the trunk will not stand more than a limited amount of water, and continuous soaking seems to injure the tree and its fruit, even if it does not destroy the grove. Shade of some kind is acknowledged by practically all experienced planters to be necessary for the cacao tree. It is not a hardy plant, capable of fighting against odds in a tropical forest; wherever it has been found in its wild state, it has been under the protection of a taller tree that kept off both the fierce rays of the sun and the destroying blasts of the hurricane. These natural safeguards must, therefore, be preserved on a plantation, although just what shade is best offers a perennially fertile topic for discussion at meetings of agricultural societies. The banana has its place, as has also the rubber tree, and it is a well-known fact that cacao grows excellently on ground which has pre-

viously been occupied by rubber trees. As popular (and surely as poetic) a shade as any is the Immortelle, the Madre del Cacao, which is particularly available in the cultivated plantations about the Caribbean Sea.

The distance which should separate the cacao trees to get the best results when they arrive at full bearing maturity is thoroughly settled. Depending, of course, upon local conditions, trees should be planted at from 12 to 24 feet apart, which allows about 300 to 150 trees to the acre.



A BRANCH OF CACAO PODS, ILLUSTRATIVE OF THE GROWTH ON THE BRANCHES.

The cacao tree does not produce marketable fruit for several years after planting, but when once the pods can be gathered—and under careful cultivation a small crop may be expected at the end of the fourth year—the yield is a progressively increasing one until full maturity at the tenth year is reached, after which the fruit is considered the finest, and the tree may be kept in steady bearing for fully a generation.

This is all a matter of agriculture. In addition to the questions of soil and shade, of protection and climate, other important details demand the constant attention of the agriculturist. These relate to fertilization, to grafting, and to particular varieties of the plant.





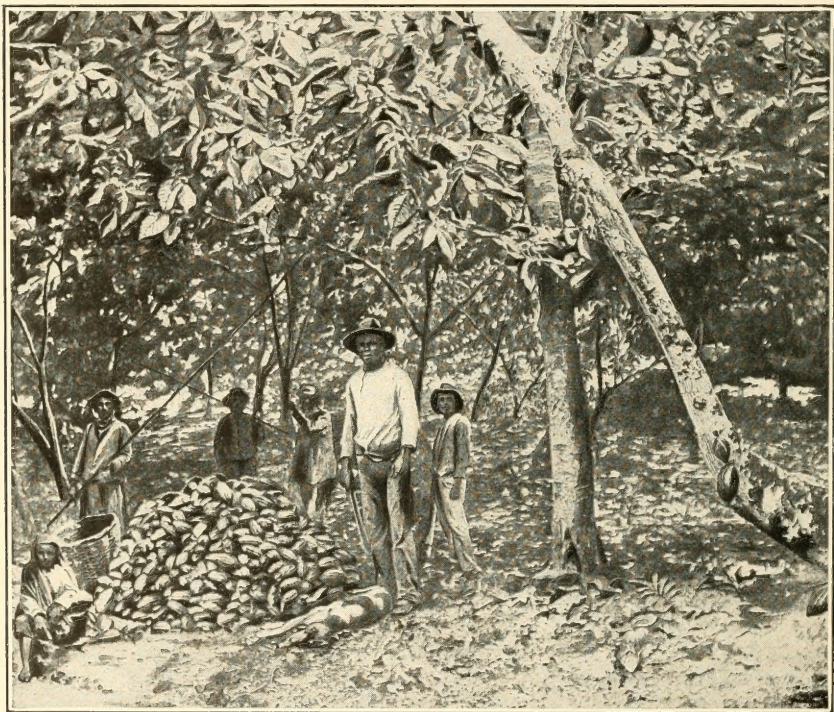
GATHERING CACAO PODS.  
(Copyright—Underwood & Underwood.)



Subordinate questions relate to seasons for picking, methods employed, and to preparation of the fruit for the market.

When this stage is reached the agricultural problem gives place to the commercial one.

The commercial problem involves the best method of treating the cacao bean so that it will bring the highest price and produce the best chocolate and the most nutritious cocoa for the palates of the consuming world. The fruit of the tree, in which the seeds lie buried, is a melon or cucumber shaped "pod," 7 to 10 inches long and 3 to 4½ inches thick. The rind is hard and tasteless, varying in color



A COLLECTION OF CACAO PODS.

from yellow to red and purple, and marked by about ten longitudinal ridges, with deep grooves between them. The interior is divided into cells, each containing a row of seeds embedded in a soft, pinkish, acid pulp which can be used as food. These beans are the size of a thick, sweet almond, and are in this state the cacao beans or the raw cacao of commerce.

When the fruit or pods are ripe—and a picking usually takes place twice a year, for the tree may have on it buds, flowers, and fruit all at the same time—they are severed from the branches by skilled gatherers, who reach up to them with a long, pruned-shaped



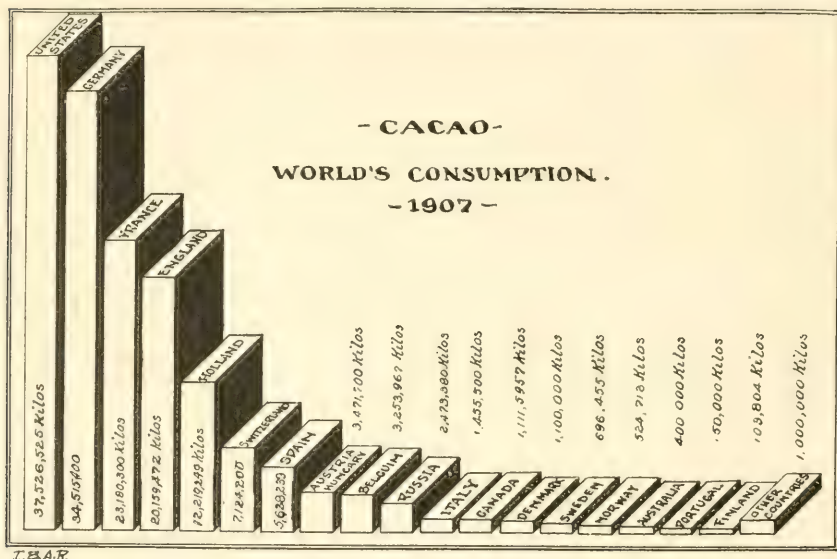


CACAO GATHERERS RETURNING FROM WORK.

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knife so arranged that it can cut off the ripe fruit without injuring any adjacent green pods. The gathered pods are left in heaps upon the ground for a day or so, when they are cut open; the seeds are then taken out and carried to the place where they are cured or sweated.

The curing process is as delicate as it is for coffee and tea, and upon the results obtained depend to a great extent the quality and richness of the powder sold for consumption. The older way was to spread the beans in the shallow pans exposed to the sun, and in a sense sun-cured beans produce a better article; but later methods require expensive buildings in which to bring about the result. Curing consists of two steps, the first being the fermentation, the



second the drying. The object of fermentation is to remove the sugary pulp surrounding the seeds, to promote chemical changes within the kernels, to convert the bitter astringent taste into a sweet one, and to improve the color and flavor of the bean itself. All this may take from two to eight days, and only experts can tell when the proper stage has arrived for the discontinuance of the process. The beans are then washed, as a rule, although claim is made by some that washing is unnecessary and also reduces the weight of the marketed article. After washing they are dried by the sun or by hot-air blasts, this drying process gradually changing the bean into the finished product, when the surface of the bean has a bright reddish-brown color, the kernel a brown, or "chocolate," color internally, and when the parts are friable and show no signs of moisture or unevenness on breaking.



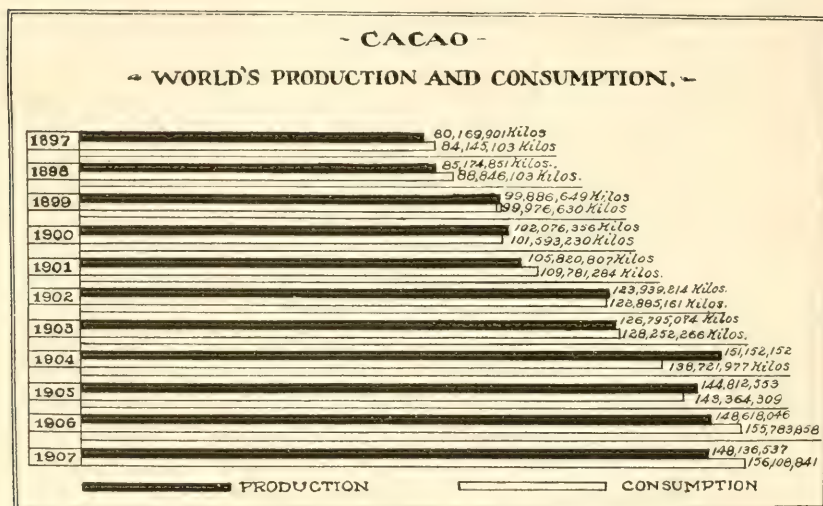


CURING AND DRYING CACAO BEANS.

The beans are "shelled," like peas, from the pod.

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The cacao beans are now ready for shipment. They are collected into bags, carried on board vessels waiting for them, and transported to the markets at which the best prices are obtainable. The largest markets to-day are those of Hamburg, Rotterdam, London, Lisbon, Havre, and New York. An interesting illustration of the spread of an industry is given by the expanding area over which the production of cacao can be traced. Originally a native of Mexico, Central and South America, it was introduced into the West Indian Islands very soon after the invasion of the New World. From there it was carried to the East Indies, then down the African coast, and now it is grown in all parts of the earth where climatic conditions are favorable. In Mexico, all the Central American republics and Panama, in Venezuela, Ecuador, Brazil, certain areas of Colombia and Peru, in Cuba, the British West Indies, in Haiti and especially



the Dominican Republic, cacao growing has long been a recognized industry. In the insular possessions of the United States, Guam, and the Philippines, much encouragement is given to efforts to establish plantations, while in Hawaii and Porto Rico the crop seems to be promising a successful addition to their export opportunities.

Cacao is one of the few crops of the world the home consumption of which has apparently little concern with the quality or the amount of what is sent away. Although chocolate of the most delicious flavor can be obtained in the cafés of Caracas, and the peoples of cacao countries partake of it both as a stimulant and as a delicacy, it is really displaced in popular taste by coffee, and to get the full flavor of the food and drink it is necessary to go to the northern countries of the world for the finished product. An important explanation for this fact is that the bean, unlike coffee, no longer serves



as the direct source of the drink; cacao has become a factory product, and after reaching foreign centers must be further prepared for individual consumption. The consumption of cacao bears no relation either to the source of supply or to markets in which it is sold. The accompanying table will show the proportionate absorption of the raw cacao bean, but public taste is the deciding factor in the disposal of chocolate and cocoa, so that Dutch cocoa meets with favor in England, English cocoa has a high selling power in the United States, and American and French chocolate sell all over the world.



CURING THE CACAO BEAN.

On some estates large warehouses are built and equipped especially for curing the beans under uniform conditions.

When the beans arrive at the factory in Holland, Spain, or the United States they are blended to get the best smoothness and richness of taste. This is a matter of skill and judgment, and upon the blend depends the character of any particular brand. The beans are next roasted, also a critical process; then they are crushed and the shells winnowed from the nibs. These nibs contain the real flavor. They must be ground to the fineness of flour, and at the end of this reduction process they have become a viscous liquid like molasses. This liquid condition is due to the presence in the nibs of an oily substance called "cocoa (cacao) butter," and up to this point all products from

cacao are practically the same. The difference between chocolate and cocoa, as it is known to the trade, is due to this cacao butter. It is retained in the chocolate, but for cacao it is squeezed out of the pulverized nibs, and thus becomes a commercial product of itself.

If chocolate is wanted, the ground nibs in the semifluid state are poured into molds and allowed to harden into cakes, or if sweetened chocolate is to be prepared, sugar and some flavoring like vanilla is added before the formation of cakes.

If cocoa is wanted, the "butter" is expressed, the remaining powder again ground, dried thoroughly, and is then ready for canning. Cacao is said to be more digestible than chocolate, the reason being that the cacao butter, although in itself an easily assimilable fat, somewhat retards the digestive process of the latter.

Both preparations have stimulating and nutritive qualities. The nutritive value depends upon the oils and vegetable ingredients of the bean, for the drink is more than a decoction like coffee or tea. It is rather a solution in which all nutritive factors are retained. The stimulant value is due to the alkaloid theobromin, almost, if not quite, identical with caffein, the active principal of coffee and tea. "Theobromin" is a word formed by analogy from the botanical name of the plant, which is "theobroma cacao"—food for the gods.

Cacao has one feature which at the present may commend it to those seeking a home in the Tropics—its production seems in general to lag behind consumption, or, in other words, popular taste throughout the world is being educated up to chocolate and cacao faster than the supply increases. This does not necessarily signify that the price of the bean is rising, but in proportion to the demand the production keeps on the favorable side of the market.















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